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STUDIES ON THE PHYSIOLOGY OF AWARENESS: OXIMETRIC ANALYSIS OF EMOTION AND THE DIFFERENTIAL PLANES OF CONSCIOUSNESS SEEN IN HYPNOSIS

John W. Lovett Doust

FANTASIES IN INSULIN COMA THERAPY: SOME PSYCHOSOMATIC CONSIDERATIONS WITH A CASE PRESENTATION

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PSYCHIATRIC ACTIVITIES AND INSTRUCTION AT A GENERAL HOSPITAL

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VOLUME XIV - NUMBER 3 JULY - SEPTEMBER, 1953

INTERNATIONAL RECORD OF CLINICAL AND RESEARCH PSYCHIATRY

JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY

VOLUME XIV, NUMBER 3, JULY-SEPTEMBER, 1953

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The *Journal of Clinical and Experimental Psychopathology* was founded in 1939 by V. C. Branham, M.D., as the *Journal of Criminal Psychopathology*. In 1944 the title was changed to the *Journal of Clinical Psychopathology*. The present title was assumed in 1951.

Entered as second class matter at the Post Office at Washington, D. C., under act of March 3, 1879.

Published by MD Publications, Inc., 910 17th Street, N.W., Washington, D. C. Copyright 1953 by MD Publications, Inc.

The Journal of Clinical and Experimental Psychopathology is published in March, June, September, December. A cumulative index is bound in the December issue. The subscription rates are $11.00 per year; $28.00 for three years.

Editorial Office
30 East 60th Street
New York 22, N. Y.

Circulation Offices:
910 17th Street, N. W.
Washington, D. C.
and
30 East 60th Street
New York 22, N. Y.

Advertising Office
30 East 60th Street
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Statement of Purposes

The JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY is dedicated to the search for the fundamental factors in the etiology and pathogenesis of psychiatric disorders; to the training of an alert, progressive, and qualified psychiatric personnel; and to the stimulation and support of all phases of psychiatric service and research—biologic, chemical, psychologic, physiologic, and social.

In the pursuit of these aims, the JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY will venture wherever the quest may lead. Its sole criterion will be the promise of an increment in the understanding of the mind's ills. It will seek, above all, to bridge national boundaries, language barriers, and the artificial demarcations of schools and trends.

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JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY

Studies on the Physiology of Awareness

Oximetric Analysis of Emotion and the Differential Planes of Consciousness Seen in Hypnosis

*John W. Lovett Doust, M.B., MRCP**

TORONTO, CANADA

"And so (in hypnosis) you lead the subject through any dreams you please, by variation of questions and of inflections of the voice; and he sees and feels all as real."—Dr. Garth Wilkinson: *The Human Body and its Connection with Man.*

This paper concerns an aspect of the interrelationship between variations of states of awareness and those of emotion, when these are followed by a monitoring variable which seems to bear a direct linear correlation with the levels of consciousness.

Hypnosis has been investigated ever since it received its name in the early eighteen-forties. The descriptive analysis of its manifestations was originally detailed by James Braid,[1] and his penetrating observations can scarcely be improved upon today. One of the most recent and complete reports of its phenomenology was that contributed by Margaret Brenman[2] to the 1950 Josiah Macy, Jr. Foundation's "Symposium on Consciousness." Brenman's data enabled her to reach the following conclusions regarding the psychiatric dimensions of the hypnotic state: (1) a reawakening of archaic patterns of thought; (2) a freer access to emotion which is ordinarily controlled; (3) a change in the pattern of self awareness with an acute percipience of specific feelings relating to the body; (4) a loss of

From the Psychophysical Laboratory, University of London, Institute of Psychiatry, Maudsley Hospital, London, England. Substance of a paper presented at the Nov. 21–22, 1952, A. P. A. Regional Research Conference, Montreal, Canada.

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spontaneous movement or an access of sudden uninhibited motility; (5) a more vivid direction of attention to happenings inside the body with loss of the natural impulse to deal with the environment, and (6) an easier accessibility to that irrational content of thought which is normally repressed. Brenman refers to the resemblance between such feeling states and awareness variation and the condition of the subject in sleep and dreams and to that of patients with schizophrenia, alcoholic and other intoxications, amnesic states, "blackouts," fugues and the like. In the discussion relating to Brenman's paper, Donald Lindsley[3] added patients with Alzheimer and Pick's diseases, frontal lobe injuries, and those on whom lobotomy had been performed to this list of resemblances.

It would be unwise to imagine that anything new has been added by the above quoted work. It is useful to have the points restated but, as long ago as 1876, William Carpenter[4] in a book entitled *Mental Physiology* noted every one of them and cited each of the analogies —even to the case of T. H. Huxley's French Sergeant of Gravelotte who received a frontal lobe injury and exhibited all six of Brenman's desiderata of the hypnotic state.

It is customary also to observe, as was done by Fremont-Smith[5] in the Macy Symposium on Consciousness, that almost every physiologic variable which has been employed in an effort to monitor the levels of relative unawareness in hypnosis has been found uninfluenced by the procedure. Despite this, the literature (e.g., Kleitman,[6]) is replete with physiologic factors showing change with hypnosis, especially when the dependence of successful hypnosis upon a certain kind of affectively determined empathy is borne in mind. Examples of this are seen in the work of Whitehorn, Lundholm and Gardner[7] on oxygen consumption; of Shiffer[8] on the effect of adrenaline on the blood pressure; Uhlenbruck[9] on the reactivity of the peripheral blood vessels to stimuli; Nevskij and Zrjacick[10] on muscular power; of numerous workers (Levin,[11] Pen and Jagarov,[12] Traugott and Powinsky,[13]) on the persistence of conditioned reflexes; and of Lauber and Pannhorst,[14] Stokvis,[15] and Benedek[16] on the relationship of heart rate, cardiac output and blood pressure to pleasant and unpleasant affect.

A particularly interesting physiologic concomitant of the hypnotic state is the relationship of observable changes in respiration with induced emotion in this situation. Jenness and Wible[17] noted that suggestion could greatly influence respiration, and the report of Whitehorn et al[7] concerning the increase in oxygen consumption accompanying anxiety in a hypnotized subject has already been referred to. In the 1950 Macy Foundation Conference, Lindsley[3] mentioned that one of the psychiatric resemblances of the hypnotic state was to that of anoxic anoxia, and Brazier[18] followed this observation by noting that, although gross EEG changes would only be shown when the anoxia had produced a stuporous state, the use of the analyzer could reveal slow 7 cycle per second activity superimposed on the normal alpha frequency with oxygen deprivation as slight as that of 14 per cent. These findings, coupled with those of Barker and Burgwin,[19,20] who demonstrated that the EEG showed changes when personality disintegration was achieved by hypnosis, and those of Ford and Yeager,[21] who noted the disappearance of alpha waves when affect was added to hypnosis, appear to suggest that, while the anoxic changes to be observed in hypnotized subjects are not likely to be profound (Klemperer and Weissmann[22]), at least they may become apparent when more delicate refinements in the technic of observation are employed.

EXPERIMENTAL PROCEDURE

An oximetric investigation was undertaken in which 4 female subjects were employed and a total of seventeen observations made, each lasting one to two hours. The subjects were inpatients of a psychiatric hospital and all had been given preliminary hypnotic sessions prior to their reception at the laboratory in order to facilitate the smooth and rapid induction of hypnosis when this was required. Three of the patients were cases of hysteria, the fourth was a case of psychopathic personality. Hypnosis was initially induced by making the patient comfortable, giving detailed instructions dealing with the separate progressive relaxation of body and mind, and following this with suggestions of drowsiness, lethargy, and sleep. Waking was always to numbers, the patient being instructed that she would be fully awake on the count of five. The arterial blood–oxygen saturation of the subject was assessed peripherally at the capillary level during these hypnotic sessions by a method of discontinuous spectroscopic oximetry (Vierordt,[23] Ray,[24] Lovett Doust[25]). In this technic the site of examination is the finger-nail fold, previously treated by the inunction of histamine ointment to produce vasodilatation, and the α and β absorption bands of the oxyhemoglobin of the blood in the minute vessels of the skin are observed through a pocket spectroscope under suitable conditions of heating and illumination. Sudden occlusion of the peripheral blood supply is obtained from a pressure bottle and a sphygmomanometer bandage wrapped around the upper arm; the "reduction time" (R.T.) is taken to be the duration of persistence of the oxyhemoglobin absorption bands following such circulatory occlusion. Despite its inherent simplicity, the results of this method show a satisfactory correlation with other methods for determining arterial oxygen saturation levels (Ray,[26] Lovett Doust[25]), and the technic has the advantage that it involves no trauma to the subject and can be repeated as often as is required. A single reading takes only a few seconds for its determination, and the reliability of the results after a suitable base line has been attained is high.

Emotional states of any desired variety may be readily produced in suitable subjects by suggestion under hypnosis. The opportunity was taken during the present investigation of inducing five different emotions and observing the influence of these feeling-states on the oximetric measurements. Of the five chosen, two were associated with *pleasant* affect, i.e., joy and ecstasy, and the other three with *unpleasant* affect, i.e., depression (grief reaction), anxiety, and rage. The emotions were produced as dreams suggested to the subject, and the experiments were so designed that, although the specific affective state was produced under hypnosis, the influence of the emotion so evoked could be monitored by oximetric methods when the patient was fully awake. This was achieved by not abolishing the experimentally induced affect before the first awakening of the patient, thus leaving the induced emotion as a form of "post hypnotic dream suggestion."

RESULTS

Table I indicates that the induction of hypnosis is accompanied by a significant fall in the oximetric values, the deep trancelike state being associated with equivalent arterial oxygen saturation values around 88 per cent. When such levels are compared with the

Relationship between depth of hypnotic relative unawareness and intensity of peripheral capillary anoxaemia, as determined by spectroscopic oximetry

	Resting Level Awake		0_2 Level Under Deep Hypnosis		Oximetric awakening pattern. Hypnotist counts slowly up to five. (R.T. seconds)				
Subject	R.T. seconds	Equiv. art. 0_2 satn. per cent	R.T. secs.	Per cent 0_2	1	2	3	4	5
D.	36	95.4	6–12	88.4–88.2	10	15	28	32	37
aet 44	37	95.7	5– 8	86.1–87.0	21	26	33	36	37
	36	95.4	7–16	86.7–89.4	16	20	25	30	36
	36	95.4	13–15	88.5–89.1	14	19	25	31	36
	36	95.4	7–15	86.7–89.1	17	20	25	30	36
	37	95.7	10–17	87.6–89.7	21	23	26	33	37
F.	51	99.9	9–20	87.3–90.6	10	22	32	44	50
aet 42	49	99.3	9–16	89.3–89.4	12	28	34	40	48
R.	30	93.6	11–12	87.9–88.2	12	15	20	24	30
aet 32	31	93.9	15–19	89.1–90.3	15	19	23	27	31
	31	93.9	15–18	89.1–90.0	17	21	27	29	31

resting prehypnosis values of about 96 per cent, it is seen that hypnosis represents a condition of relative capillary anoxaemia in the subject. Table I also shows that, when the unawareness of the hypnotized subject is progressively abolished by awakening her to numbers, this gradual "coming into contact with reality" is predictably accompanied by a lessening of the anoxaemia.

Experimentally Induced Anxiety. Subject D. was hypnotized, and the hypnosis deepened to its maximal possible extent at the time (oxygen saturation = 11 R.T. secs. ≡ 87.9 per cent). The examiner then suggested to the patient that something had gone wrong at home, perhaps someone had died, that she (the patient) was very worried about all this, very afraid, very anxious.

With these suggestions the subject became objectively, progressively upset. Her fingers clenched, she creased her forehead, sweat appeared on her brow and on her palms, and she began trembling. As one suggestion of fear was added to the next, so her oxygen saturation levels fell in a stepwise fashion (oxygen saturation = 11 → 10 → 7 → 6 → 4 → 3 secs. ≡ 85.5 per cent). At this last measurement the patient responded to a question as to how she felt by remarking: "It's a dreadful feeling. I feel very nervous and afraid." And then she burst into tears. When she had been weeping for about half a minute, a further oximetric reading was taken and was found to be higher than the previous very low values (oxygen saturation = 8 secs. ≡ 87.0 per cent). This is in accordance with other examples (Lovett Doust and Leigh[27]) of the influence of the motor expression of emotion in raising depressed oxygen saturation levels.

Following a further statement by the patient that she was "still worried," she was awakened and further questioned regarding her state of mind.

You are quite awake? "Yes."

How do you feel? "I am worried about something. But I don't know what it is."

Just relax. There's nothing to worry about. "But there is. Something's gone wrong—I think at home. I must ring up my husband and find out if he's all right. I'm sure something dreadful has happened."

Nine oximetric readings were taken during this conversation. They ranged between 19 and 29 secs. (≡ 90.3 – 93.3 per cent oxygen). They were, in other words, significantly lower than the resting level of 36 seconds (≡ 95.4 per cent oxygen) at which she commenced the experiment.

The patient was now rehypnotized deeply. It was suggested that her anxiety was nothing more than an unpleasant dream; the whole thing was false, the anxiety had gone; she was as happy now as she had been two hours ago (oxygen saturation = 10 → 15; 87.6 → 89.1 per cent).

How do you feel? "I'm happy now."

You are calm and confident, you are quite all right? "Yes."

She was awakened by numbers in the usual way. When fully awake on the count of five, she was asked about her state of mind:

How do you feel? "I feel all right." (Oxygen saturation = 36 secs. ≡ 95.4 per cent.)

This experiment is illustrated in figure 1.

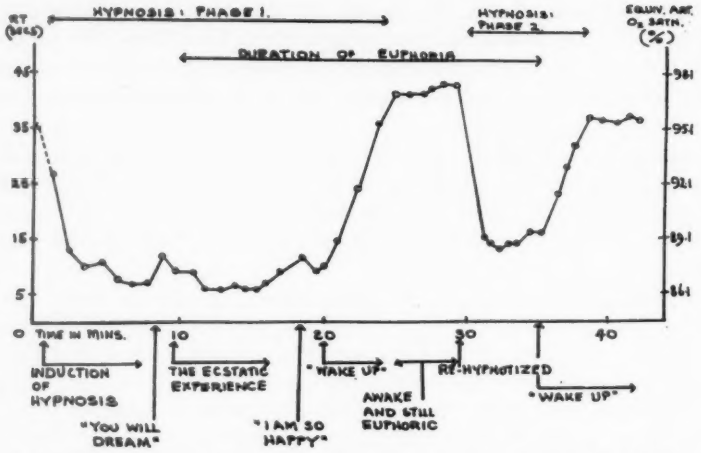

FIG. 1. Oximetric record of equivalent arterial oxygen saturation variations in subject D. during hypnosis. Note the correlation between the depth of hypnosis and the peripheral anoxemia.

Experimentally induced depression. Grief reactions were induced in 2 subjects in a similar fashion to that of anxiety. Nonspecific situations were suggested "as in a dream," but with the added strong suggestion that they would seem very real. Both subjects wept profusely, expressed gloomy thoughts when questioned on their feelings, confessed themselves utterly miserable but were uncertain as to the exact cause.

Reawakening left them still unhappy, even racked by tears, with the vague uncertainty that something, perhaps a funeral, was imminent. And, as with the findings of anxiety, their oxygen levels in this awakened but still grief-stricken state, were lower than their initial prehypnosis resting values. (Patient D.: oxygen saturation = 32 secs. against 36 secs. = 94.2 against 95.4 per cent. Patient F.: oxygen saturation = 48 secs. against 52 secs. = 99.0 against 100.0 per cent.) Rehypnosis and abolition of the melancholic affect was accompanied by a return of these levels to their original oximetric basal resting values on reawakening in both patients. Figure 2 illustrates the details in Mrs. D.'s case.

Experimentally induced rage. The experiment was again repeated on Subject D., this time feelings of anger being substituted for those previously investigated. The patient was told she would have a dream and that it would seem very real to her. It was suggested that she was furious, very annoyed indeed, because someone had let her down; all her kindness had been spurned, she was extremely angry.

When awakened the subject remarked that she felt cross. "I feel annoyed but I don't know why," and she stated that she could lose her temper very easily. She appeared flushed, her brows were knit, and she frequently clenched her teeth. Oximetrically her oxygen levels were in accord with those of the previous experiments and lower than her prehypnosis resting levels (oxygen saturation = 29 secs. against 36 secs. = 93.3 against 95.4 per cent).

Rehypnosis and abolition of her rage reaction led to re-establishment of normal resting oximetric levels, as before. This result is illustrated in figure 3.

Experimentally induced joy, euphoria, and ecstasy. Following upon these researches into the experimental production of unpleasant emotions, an attempt was made to evoke more pleasant feeling states, and to monitor these oximetrically in similar fashion. Two subjects were employed and the details of the former experiments repeated.

Joy. The procedure for subject D. was briefly as follows: she was deeply hypnotized, told she was going to dream and that the dream would be so real that she would not be able to distinguish the dream from reality. She was informed that she was very happy, that she was going home for the weekend, that she was going to spend some of the time in town, and that she would visit a theatre. The symptoms of her illness did not bother her any longer.

The patient was now awakened. She remarked that she had had a nice dream, that she did not often have nice dreams, that she had been at home. It was a lovely day, the birds were singing, the flowers were in bloom: "I went out and bought a new pink evening frock. I was so happy."

At this stage of the experiment and with the patient fully awake, a further series of oximetric measurements revealed that, not only had the oxygen saturation returned to the pre-hypnosis resting levels, they had been elevated to well above them. As against the resting level of 36 seconds (95.4 per cent oxygen) the saturation levels in the experimentally induced state of joy ran between 41 and 43 seconds (96.9 to 97.5 per cent oxygen). (Figure 4.)

The patient was rehypnotized now, the dream of happiness was recalled and then abol-

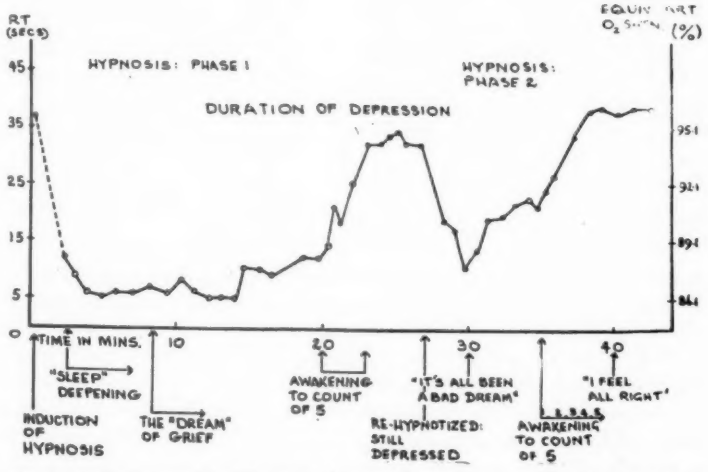

FIG. 2. Oximetric record in subject D. showing effects of hypnotically induced grief reaction on arterial oxygen saturation. Note the sensible decline in these values during the persistence of the depressive affect which extended from the eighth to the thirty-second minute on the time axis.

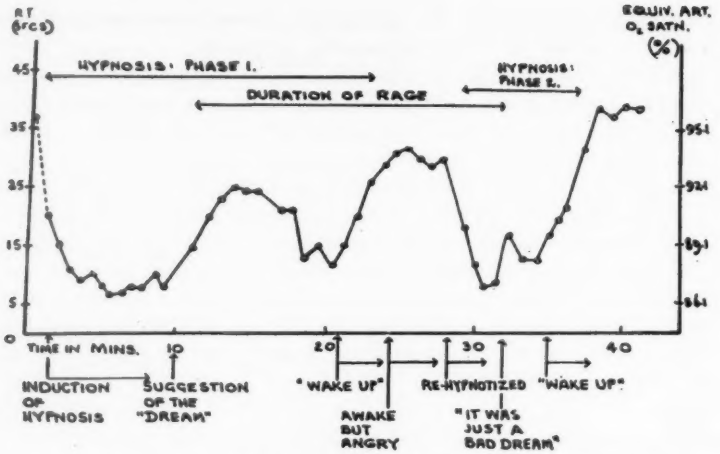

FIG. 3. Oximetric record in subject D. illustrating effect of induced rage reaction.

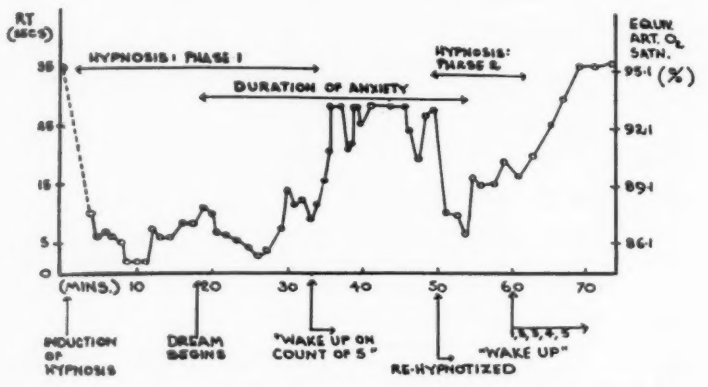

FIG. 4. Oximetric record in subject D. showing effect of induced euphoria. Note the reversal of the tendency revealed in figures 1, 2 and 3, where the affects were unpleasant ones.

ished and she was reawakened. This time the patient returned to an oximetric level exactly equivalent to that before the experiment (oxygen saturation = 36 secs. = 95.4 per cent).

Ecstasy. Intensification of the feelings of happiness, and adding a poetic emphasis to them, proved sufficient to induce in the patient a state of sublime and, it must be added, somewhat maudlin, ecstasy. Awakening her after a dream in which "all the world seemed beautiful" yielded comments by the patient that she could "kiss the very blades of grass," that she was "one with nature." The trees and the flowers were all contributing to her happiness. Assessment of the subject's oximetric status at this level of awareness revealed

an accentuation of her responses to joy and happiness. The oxygen saturation levels were even higher by contrast with prehypnotic resting levels (oxygen saturation = 49 – 50 secs. = 99.3 – 99.6 per cent against 36 secs. = 95.4 per cent).

Experimentally induced pain. The fourth subject was used to study the oximetric and sphygmomanometric responses to two types of pain. In one series the pain-provoking stimulus was applied extrinsically and the locus of its appreciation was peripheral and maximal in the area of application: in the second series the pain was intrinsic and dependent upon the action of the stimulus on intracranial blood vessels far removed from the application area (in this case the site of injection of a metabolite).

The circumstances in which "extrinsic" pain was brought about were provided by the Hines-Brown[28] cold pressor test modified so that the duration of immersion of the subject's hand was increased to five minutes. This procedure represents a major stress and demands considerable capacity for endurance and high motivation on the part of most subjects. The influence of cold stress on the fully awake patient prior to hypnosis is shown in figure 5 in terms of the maximal degree of response obtained oximetrically and the simultaneous pressor effects on the systolic and diastolic arterial pressures. It will be noted that the constriction of awareness accompanying the emotional component of such severe pain is mirrored oximetrically in the depression in the arterial oxygen saturation to levels equivalent to those seen in hypnosis. And similarly, when the patient has been hypnotized and her oximetric and awareness levels have been diminished by this procedure, then the cold water stimulus no longer acts as a stress which continues to influence these levels, no matter what suggestion of analgesia or anaesthesia, etc., is given her and despite the normal pressor response of the blood pressure.

In contrast to these findings are the results of intrinsically acting pain. This type of stress was provoked by the intravenous injection of 0.1 mg. histamine acid phosphate and the subsequent development of the histamine headache phenomenon. The mechanism of this reaction has been evaluated recently by Wolff[29] and shown to be due in large part to the relaxation of the walls of intracranial blood vessels and consequent stimulation of the pain-sensitive nerves contained within them. The oximetric correlates of the response to intravenous histamine have been investigated and reported elsewhere, Lovett Doust[30]; essentially they consist in an initial fall which parallels the duration of the hypotensive phase of the arterial pressure response and persists for some 15 to 30 seconds following the injection (Selye's[31] "shock" phase), followed by an afterrise to oximetric and blood pressure levels well above their resting values and maximal in some one and a half to three minutes (Selye's "counter-shock" phase or the rebound phenomenon of Lovett Doust and Schneider[32]). It is at the climax of this latter phase, and prior to the eventual return of the levels to their original resting baselines, that the histamine headache reaches its maximum intensity.

Figure 5 indicates that the dimensions of response to "intrinsic" pain, at least insofar as this is exemplified by histamine headache, are uninfluenced by hypnosis. These findings suggest a possibly important psychophysiologic differentiation of pain-provoking stimuli in terms of the capacity of such stimuli to educe homeostatically directed responses on the part of the subject.

COMMENT

The interdependence of physiologic variables, both among themselves and with variations in the mental state, is again exemplified by the findings reported in this paper. That significant changes occur in so fundamental a prerequisite of homeostatic equilibrium as oxygen metabolism, when such profound alterations are made in the dimensions of awareness as are evoked under hypnosis, should occasion no surprise. Yet, as has been recalled, gross changes in this modality of response, are not seen (Klemperer and Weissman[22]). Of the physiologic variables mentioned currently in this report, a statistically significant correlation exists

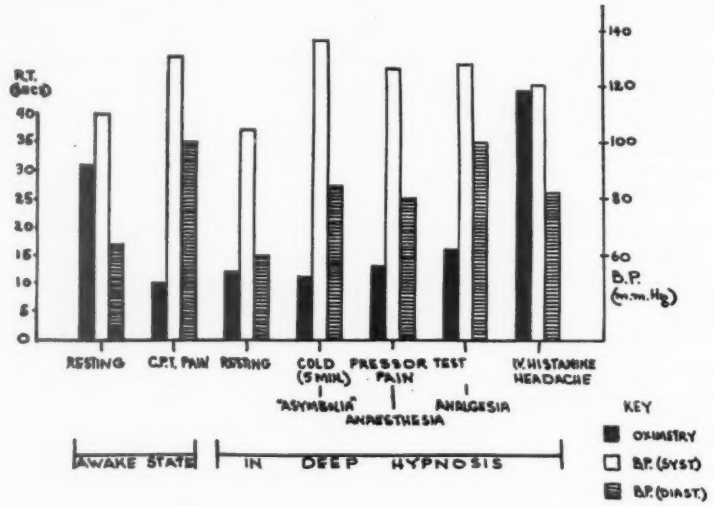

FIG. 5. Histograms showing oximetric and sphygmomanometric resting levels in the resting awake and hypnotized states for comparison with the effects of two types of pain provoking procedures.

between the baseline results of spectroscopic oximetry and those of the arterial pressure (r = +.37, Ray *et al*[26]; r = +.537, Lovett Doust[30]). Such a degree of intercorrelation lends support to the hypothesis that extrinsic pain stress in the awake state demands a dimension of homeostatic response which reverses this direct relationship. It would appear possible, moreover, that an association with consciousness is mirrored in these two physiologic variables, the blood pressure changes reflecting more the adjustment in terms of intense affect (in this case pain) and the oximetric changes more those of reflective awareness. Some degree of confirmation of this suggestion is seen in the responses present under hypnosis. Reflective awareness in this situation does not change significantly from nonstress conditions, and the oximeter does not record a significant difference; affect, however, is partially

dissociated from consciousness with stress under hypnosis, and the blood pressure response to pain is seen as almost indistinguishable from that in the awake state.

Such a hypothesis leads to a consideration of the bearing of emotion on awareness in general and the modifications of this occurring in hypnosis. As Bleuler pointed out long ago, it is impossible to conceive of attention in an affect-free sense. Reality is always interpreted by the subject in terms of his own particular fantasy life and its evaluation seems to be largely dependent upon the hedonic qualities which resonate from such interpretations. The less aware the individual, the more he may be said to dream, and the correspondence between dreams and other states of reverie and psychotic thinking (Pelletier,[33] Stransky,[34] Jung,[35] Bleuler,[36] Beringer,[37,38] Schneider,[39] Mayer-Gross[40,41]) with the levels of consciousness displayed in psycho-neurotics in terms of their emotional conflicts (Stekel[42,43]), is sufficiently close to have impressed at least one physiologist, Hoskins.[44] Dreams produced under hypnosis share with those spontaneously occurring during natural sleep and in reverie states, the heightening of the emotional component as the reflective aspect of awareness falls away (Schrötter,[44] Bagby,[46]); both their formal and dynamic contents are characteristic of the personality and levels of "awake" consciousness of the dreamer (Stekel,[47] Lovett Doust,[48]). The capacity of the arterial blood-oxygen saturation to change with variations in the levels of consciousness has been demonstrated in the dimension of reflective awareness by studies on the decrease in such saturation values, as monitored by photoelectric oximetry, with the onset of natural sleep (Lovett Doust and Schneider[49]) and confirmed by similar studies on patients during insulin coma (Lovett Doust and Schneider[32]). In the affective component of consciousness, similar oximetric variations have been noted (Lovett Doust,[50] Lovett Doust and Leigh[27]). That aspect of consciousness exhibited by the hypnotized subject resembles in many ways a similar type of constriction in both its reflective and its emotional aspects; and similar blood-oxygen levels have been found in hypnosis as in strong emotion (Kroetz,[51] Hick *et al*,[52] Lovett Doust and Leigh[27]), in constitutional schizophrenia (Lovett Doust[32]), in inattention and reverie states (Lovett Doust[50]), as well as in the other normal and abnormal situations already mentioned.

SUMMARY

(1) A series of 17 experiments were conducted on 4 hypnotized subjects whose arterial oxygen saturation levels were monitored by spectroscopic oximetry. In 3 subjects the emotional states of grief, anxiety, rage, joy, and ecstasy were induced as suggested "dreams"; in the fourth, the effects of two types of pain were studied.

(2) It was found that the depth of hypnosis and extent of relative unawareness bear a linear relationship to the equivalent arterial oxygen saturation, at least in terms of the peripheral capillary circulation investigated. The extent of the anoxaemia resembles the results obtained by similar oximetric methods in reverie, natural sleep, and other (e.g., psychotic) states in which comparable dreamlike states of consciousness are seen.

(3) This relative anoxaemia accompanying hypnosis is not increased by the exhibition of such potential pain-provoking stimuli as that of the Hines-Brown test, providing the subject's level of consciousness does not change, although the hypertensive blood pressure

response remains unaltered by hypnosis. By contrast, intrinsic head pain as evoked by intravenous histamine shows a cycle of accompanying oximetric and sphygmomanometric change uninfluenced by the depth of hypnosis attained.

(4) When states of affect are deliberately produced as dream patterns in the course of hypnotic relative unawareness, their oximetric concomitants are dependent upon the hedonic quality of the educed emotion.

ACKNOWLEDGMENTS

I am deeply grateful to my former colleagues, Doctors J. Hoenig and A. Oldham for collaborating in this work.

RESUMEN

Se llevó a cabo una serie de 17 experimentos en 4 sujetos hinoptizados cuyos niveles de saturación arterial de oxígeno fueron revelados por oximetría espectroscópica.

En 3 sujetos, los estados emocionales de aflicción, ansiedad, ira, júbilo y éxtasis fueron inducidos como "sueños" sugeridos; en el cuarto fueron estudiados los efectos de dos tipos de dolor. Se halló que la profundidad de la hipnosis y la retensión de la inconsciencia relativa posee una relación lineal en la saturación arterial de oxígeno equivalente por lo menos en lo que se refiere a la circulación capilar periférica estudiada. La extensión de la anoxemia recuerda los resultados obtenidos por métodos oximétricos similares en ensueños, sueño natural y otros (por ejemplo: estados psicóticos en los cuales se ven comparables estados de conciencia crepusculares). Cuando los estados de afecto son producidos deliberadamente como sueños modelo en el curso de la relativa inconsciencia del hinóptico, sus concomitancias oximétricas dependen de la realidad hedomística de la emoción educida.

RESUME

Une série de 17 expériences a été exécutée avec 4 sujets hypnotisés dont les taux de saturation artérielle d'oxygène ont été révélés à l'aide de l'oxymétrie spectroscopique. Chez 3 sujets, les états émotifs de chagrin, anxiété, colère, joie et extase ont été induits comme "rêves" suggestionnés; chez le quatrième, les effets de deux types de douleur ont été étudiés. Il a été trouvé que la profondeur de l'hypnose et l'étendue de l'inconscience relative se rapportent directement à la saturation artérielle d'oxygène équivalente, du moins en termes de la circulation capillaire périphérique investiguée. L'importance de l'anoxémie ressemble aux résultats obtenus au moyen de méthodes oxymétriques similaires dans les états de rêverie, de sommeil naturel et autres (par ex., des états psychotiques dans lesquels des états comparables de conscience crépusculaires sont observés). Quand des états émotifs sont produits de propos délibéré comme modèles de rêve au cours de l'inconscience relative hypnotique, leurs concomittants oxymétriques relèvent de la qualité hédonistique de l'émotion développée.

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Fantasies in Insulin Coma Therapy: Some Psychosomatic Considerations with a Case Presentation. II.

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The first part of this report appeared in the April-June, 1953, issue of the JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY. An hypothesis, presented in Part I, stated that the combined tendency to physical and psychic discharge during each treatment period of insulin coma therapy is a repetitive abreaction of the central conflictual experience of the patient's life. The term, central conflictual experience, represented a basic condensation of fantasy from persistent infantile wishes fused with their conflicting prohibitions. This essential fantasy content was manifested pretreatment in the psychotic symptoms. These in turn were related to the early conflicts in the patient's life. The empiric observations supporting the hypothesis were presented and related to the theoretical concept of the repetition compulsion. The associative technic used to evoke and extract the predominant fantasy experience was described and is further explained and demonstrated in the material to follow in this second part. The illustrative case history presented in the first part will be used to show the continuity existent between the outstanding historical events of this patient's life and the emotional experiences discharged during insulin coma therapy. The latter experiences are now described in Part II.

THE INTERVIEWS DURING INSULIN COMA THERAPY

In the first interview the reader will recognize the patient's destructive, hostile feelings to the aggressive woman nurse, the threat these feelings incur through fear of retaliation, the fear of attack from both front and back, and other manifestations of his passive wishes. The feeling experiences of prominence in the history of the patient are dealt with repeatedly during the insulin treatment course and they form a coherent pattern of emotional reactivity for this, or for any, individual patient. It is suggested that the reader allow his own associations and experiences with patients as full play as possible in comprehending the mixture of child and adult qualities in the productions of this schizophrenic. This is particularly needed in reference to the feeling underlying such phrases and words as "shot in the can," "twisting and turning," and "pushing over furniture." For best evaluation of the material from the standpoint of this study the reader should understand the principles of dynamic dream interpretation and the characteristics of the unconscious as described by Freud.[25] The reader should remember that the nurse concerned, Miss M, had a high masculine component in her personality and functioned in an aggressive role. The male attendant or nurse J, conversely, was a gentle, passive man of large muscular build, responsible to the nurse. In reality, he resembled physically the patient's own father.

may be interchanged as identical to arrive at their fantasy content. More dependent feelings are recognized in *tie* (hands and legs)—(for) *safety*—(ad) *joining*—(nurse, people). The patient is here concerned with the thought of *rolling off* (to be hurt) while in this *tied* (helpless) state. Destructive feelings are likewise expressed in *put* (fist through cellophane screen). The particular screen referred to has the connotative appearance of a window.

Punctuation was purposely minimized and the present tense employed in the discussion of the interview material because the latent meanings or fantasy value of the words themselves would tend to be obscured. The reader will observe that the physician presented the patient's own words back to him for further elaboration. He asked for further expansion by offering words designed to expand what the patient had already said. Occasionally the physician restated, when he considered it timely, several of the patient's own word-meanings together. This was done to encourage further self-expression and interest. Interview No. 1 was early in the treatment course after the patient had had only 13 insulin treatments and before he had any comas. It was conducted four or five hours after termination. Interviews at this time are characterized by considerably more repression and control than is manifested during interviews taken at the time of termination.

INTERVIEW NO. 1

Patient: When I go into coma—I guess she gives me an extra strong dose and that makes me go out—that makes them tie your hands and legs to the bed.

Physician: Tie your hands and legs to the bed.

Patient: I guess that is for safety's sake.

Physician: Whose safety?

Patient: The people in the adjoining beds or for the nurses who bring that—what is it—syrup—I don't know.

Physician: What do you think?

Patient: So you won't roll off the bed or put your fists through one of those cellophane screens right next to you or in case you get violent they can check up on you.

Physician: You might get violent?

Patient: Yes, in case you might get violent.

Physician: What would you do?

Patient: You might get up and walk around—push over furniture or something like that.

Physician: You feel like that on insulin?

Patient: I didn't feel like it today—I had a light shock—when you get an extra heavy dose of that juice or whatever it is you start twisting around.

Physician: What does it mean to twist around?

Patient: First you belong on your back then you are on your stomach.

Physician: You feel you belong on your back?

Patient: I guess it means that you're restless more than anything else.

Physician: Why restless?

Patient: I don't know, when you get that treatment I guess you are inclined to get restless—I see them tie down all the different patients.

Physician: What does the restlessness mean?

Patient: It means you can't sleep on your back—constantly twisting and turning.

Physician: What for—twisting and turning?

Patient: It must be due to the treatment—the little jab in the can—is that insulin—the medicine—I don't know what it is.

Physician: What do you think of the jab?
Patient: It's all a necessary part of the procedure—I guess. (The patient at this point is biting his lip.)
Physician: What makes you think it is a necessary part of the procedure?
Patient: That's what puts you to sleep more or less.
Physician: More or less?
Patient: As far as I know.
Physician: You mean you have some other ideas?
Patient: I don't know what else would put you to sleep outside of that shot in the can.
Physician: A shot in the can—what does that remind you of?
Patient: They give you a quick jab and before you know it they tie you with those ropes.
Physician: Who jabs you?
Patient: Well, Miss M. will do it always in the morning.
Physician: She jabs you—then what?
Patient: Takes a little while to take effect—in a little while you are asleep—then if it is a coma day I will wake up with my arms and legs tied down and I will be asking for J. to untie me.
Physician: What do you do when you fall asleep?
Patient: I certainly don't have any dreams—I just fall asleep.
Physician: Sometimes you dream?
Patient: Yeah, yeah. (Quickly.)
Physician: What do you dream about?
Patient: I say I don't—I never have any dreams—I just fall asleep—I hardly ever dream.
Physician: When you do dream.
Patient: Of course—I don't dream when I wake up—uh—uh (very hesitant, difficulty in concentration is noted). I was very, very sick—I could not drink those glasses of fruit juice they give—I passed out (i.e. a hypoglycemic reaction on the ward).
Physician: What did you think?
Patient: When I woke up I didn't have any idea where I was or anything like that.
Physician: You had thoughts?
Patient: I had no recollection of where I was or anything.
Physician: What did you think?
Patient: I was thinking over—I was trying to put everything together—I recognized the male nurse and then the female nurse—they brought me back, they gave me water—I didn't want to see it—we came down stairs again.
Physician: How did you feel when you didn't know where you were?
Patient: I was lost there for a minute.
Physician: What was it like to be lost?
Patient: Confusing.
Physician: You were confused?
Patient: Of course—I didn't know where I was but I recognized the male nurse then I knew I was all right.
Physician: Then you thought you might not be all right.
Patient: I thought I might not be all right but then I recognized the male nurse I came down all right.

SUMMARY WITH DISCUSSION OF FANTASY WORDS

The reader recognizes among the first words of Interview No. 1 the following child-like words laden with emotional meaning: *nurse—gives—strong dose—makes* (me)*—go out.* These words suggest a feeling experienced in fantasy as attack by the *nurse,* who administers the insulin to him by intramuscular injection into the buttocks while the patient lies on his stomach in a position of vulnerable passivity. The nurse is then to the patient a composite of masculine and feminine attributes.

In the foregoing interview, the patient continues with an elaboration of his feelings of helplessness, and his reactive aggressive feeling opposing this dependency. One may find in the extracted words: *nurse—bring—syrup* a fantasy of nursing or feeding. *Syrup* is interchanged subsequently for both *juice* and *water*. The three are similar in that they are liquids taken into the mouth, and in accordance with primary process thinking of Freud[35] something fragile and easily broken through. For the purposes of the patient it belongs to the nurse. The patient expresses more of his assaultive feelings in *violent* and the associated need to have this violence controlled, which is directly represented in the word *check*. The same feeling trend is continued in the use of activity words such as *walk around—push* (the nurse's furniture). The patient also internalizes these destructive feelings. He senses them as retaliatory upon himself in his feeling of being subjected to injury in the words *had a shock* and in *get an extra heavy dose of juice* again from the *nurse*. The *juice* (from the nurse) *starts* (me)—*twisting around*. Would twisting be turning away from the object and then turning to it again, that is, both attraction and repulsion? More of these same feelings of being attacked by the nurse are shown in the phrase *belong on* (my) *back*, and in this position the patient says that he is *restless*. He adds to this feeling (I) *can't sleep* (I am) *twisting and turning*. These feelings of passivity are then related to a reality of the treatment injection through *the little jab in the can*. It is noticeable that *tie-ropes* (that cause helplessness) is associatively connected by context with *shot in the can* and *a quick jab*. In relation to *jab* there occurs sleep and the helplessness of having the arms and legs tied. It is here that the male nurse is asked to untie him, that is, save him from this both desired and feared fantasy state of being attacked. Expressed more broadly it is the wish for and the reaction against being the helpless, nursed one.

The patient's thought of *dreams* in relation to sleep and awakening is awkwardly and anxiously admitted in this interview. First, there is a denial followed by hesitancy and impaired concentration. His first association is to being *very sick—passing out* in relation to the *fruit juice* of the *nurse*. On awakening it is necessary for the patient to deny that he has any knowledge of where he was or *anything like that*. He says that the male nurse is recognized first. Second and less spontaneously, the female nurse is admitted to his presence but occupies, in the patient's feeling, a subordinate haven of attachment and dependency. The father and mother nurses give him the *water* (juice). In continued association with the word *water* it is significant that the patient says *I didn't want to see it—we came downstairs again*. The underlying meaning that becomes apparent here is that *not wanting to see* the water is the denial of feeling of having it in his mouth. That is, the denial of his dependent wishes. Still another aspect of these two unusually revealing statements are the parallel feelings of passively being *brought back*, of being *given water* and of *not wanting to see*. It was as though in one sense, their meaning is that the patient wishes to continue his nursing-sleep. The second part of the statement, *we came downstairs again*, may only be suspected from the frequent use of such a symbol to express subsidence of excitement.

In this interview and in those following, the reader will find the patient dealing with fantasy experiences that are expository of passive receptive wishes occurring with countering aggressive feelings. Hostility was expressed in this interview to the forceful, female nurse,

but these feelings were ambivalent expressions also of the wish to be the nursling. The same desire to be cared for and fed by the male nurse was more positively expressed. The expressions of *going out, rolling off,* and of being *tied, checked* and *sick* conveyed the feeling both of helplessness and punishment for his unacceptable wishes. The words that exposed the consistent fantasy experience have been italicized and discussed here. For each of the remaining interviews the fantasy words alone will be summarized. It is altogether meaningful to the patient's unconscious fantasy life that certain of these words will be found to recur repeatedly both in the same and different interviews. It is corroborative evidence of the existence of a consistent fantasy experience throughout the treatment course.

The reader will be able to recognize from the fantasy words the continuity of a theme when these words are considered with the patient as the subject or object of their action, or the one experiencing the qualities expressed by them. This theme, originating from the patient's life situation, was obscurely expressed in the acute psychotic symptoms, and was repetitiously worked off in the direction of discharge of the conflict during the three month course of insulin therapy.

INTERVIEW NO. 2

The following interview was taken on the afternoon after the patient's fifteenth insulin treatment and the fourth coma day.

Patient: I can't remember anything today. I had a slight reaction—yesterday I had a nightmare—I hate those things—think of all sorts of weird things.

Physician: You said weird things.

Patient: Yes, very weird.

Physician: What were they?

Patient: Must I tell you—well—like a nightmare—kept on seeing pictures of girls—all sorts of screwy things—in a brown room—low ceiling—kept seeing one girl then I was so damn sick when I woke up—I had a nightmare the day before yesterday, can't remember that one—yesterday's was worst—that was the day I was tied down—got black and blue spots on my wrist—had a feeling that I couldn't get out—my ankles and arms were tied—I couldn't get off the bed—had feelings of being trapped unable to move my arms and legs—boy, it was horrible.

Physician: You saw a girl?

Patient: I kept on seeing this nurse (Miss M) who just came over—the whole room was pale brown—ceiling was low—lamps like this (gooseneck lamp on doctor's desk), I was playing around with her—chasing her.

Physician: What did she do?

Patient: I was flirting—kissing—playing around.

Physician: What then?

Patient: Then I kept on—I kept seeing the ceiling (i.e., the passive position)—it was light brown and there was a dozen lamps off the ceiling like this (pointing to the gooseneck lamp on the doctor's desk).

Physician: How did you feel?

Patient: When I woke up I was sick—I felt completely dragged out—knocked out.

Physician: How does one feel when he is flirting?

Patient: I don't know—just felt ill at ease—damn stupid.

Physician: The woman made you feel ill at ease?

Patient: I don't know—she just did that's all. I don't want to go into all the gory details.

At this point patient wipes off his tongue and lips with his hand. The patient complained that his tongue was sore from the treatment. He explained that he did "all those dirty

things besides intercourse and making love" in this "nightmare." These "dirty things" were described as "chewing on her tits" or "chewing on her vagina-hole." The patient also went on to say: "The nurse in the dream shoved that poison up my rectum—the poison really hangs on after the treatment."

Summary of fantasy words: *hate—think—weird—tell* (nightmare)—*see* (girl)—*screwy—brown—low* (ceiling)—*sick—wake—tie* (down)—*black and blue*—(cannot) *get* (off)—*trap—unable to move—horrible—nurse—come*—(w) *hole* (room)—*lamp—play* (around)—*flirt—kiss—chase—drag* (out)—*knock* (out)—(damn) *stupid—ill* (at ease)—*gory—intercourse—make* (love)—*chew* (on tit, hole)—(nurse) *shoves* (poison up rectum)—*hangs* (on after).

The third interview was held four hours after termination of the twenty-first treatment and the eighth therapeutic coma response. During the interview the following fantasy words were expressed: (not) *good—knocks* (for a loop)—*merry-go-round—moves—wake—hang* (on after)—*dream—horrors—see—bad—think—spinning—verge* (on nightmare)—*pass* (away)—*feel—helpless—be* (on back, bed)—*unable—get* (up)—*bound—nurse—come—lousy—worse—take* (out blood)—*sick—weak—misery—coddle* (me)—*surprise—snap—fast—watch over* (me like a six year old).

For the meaning of "six year old" the reader's attention is referred to the historical material presented in the first instalment.

The fourth interview, likewise, was held four hours after termination. It followed the twenty-fifth treatment and the twelfth therapeutic coma response. The fantasy words expressed during that interview were: *awful—hell—think* (am Hitler)—*feel* (mustache)—*sick—come* (out)—*flashback—screwy* (ideas)—*exhaust—weak—wear* (out)—*tire—climax—run—race—see—do—severe—weird—whirl—have* (sensation)—*more—hard* (thing)—*get* (thought)—*keep—rub* (nose)—*little—black* (mustache, pill)—*showers—read—life*—(no) *chance—hate—adorn*—(don't) *give—slicked* (down)—(not) *good looking* (sheik, gigolo, ladies' man)—*successful*—(not) *have* (mustache)—*hope—suppose—want—horrible—pick* (up)—*make* (out)—(not) *well—confused—look* (at ceiling).

INTERVIEW NO. 5

The following interview differs from the foregoing interviews in that it is taken as the patient was terminated with intravenous glucose solution. This interview was made on the fortieth treatment day, twenty-seventh coma.

Patient: Da-da (spoken repeatedly for a minute or two and then patient changed it to) daddy—daddy—daddy—father (as the patient speaks of daddy and father he is making sucking movements of his lips by pressing them together). Glad that he was alive—Superman's balls—they're big—they ache crazy—alive—nuts—nuts—nuts—I see the rising sun.

Physician: Rising sun.

Patient: Light.

Physician: What rises?

Patient: A cock.

Physician: Whose cock?

Patient: Louder—softer—come here (this was given as a command to the doctor)—son-of-a-gun—gun of—gun of—gun of—(repeatedly)—you're all right.

Physician: What are you thinking?

Patient: You're all right.

Physician: Superman's balls?

Patient: No yours—Doctor's (these three words were spoken a number of times and then:) louder—louder—let you go out—let me out—out, out—away from this hospital—away from Doctor—Doctor is a good man. (He continues muttering under his breath). Push my arm up. (The patient holds his arm as though cramped. He has just been released from the usual wrist restraint used during the coma. He asks the doctor to assist him which he does). Slowly—that a boy ("That a boy" is repeated over and over while the patient begins and continues to kick his right leg up from the bed with the thigh held flexed). You're the teacher—please let it go—don't go away—don't leave—will you please—I'll cry if you go away—stay here and we will just chit-chat—nothing serious—okay—can I have some juice? (This is a question to the physician. As he asks it, he pushes a nurse away who was helping him put on his bathrobe and says:) can we chit-chat later? when?

Summary of fantasy words: *glad—alive—big* (balls)*—ache—crazy—see—rising* (sun, cock)*—light—loud—soft—come*—(son, sun of a) *gun—all right—let* (out)*—good—push* (up)*—slow—teach* (me)*—please*—(don't) *go* (away)— (don't) *leave—cry—stay—chit-chat*—(nothing) *serious—have* (juice).

INTERVIEW NO. 6

The next interview is from the time of termination on the forty-first treatment day and the twenty-eighth coma.

Physician: What are you doing?

Patient: (There is no reply. He is vigorously blowing in and out through rounded lips. He is extremely active and excited. This culminates with an orgastic-like release of excitement. Patient mutters under his breath. He makes kissing motions in the direction of a nurse at his bedside and says:) Yes—yes (he then repeats:) come on—come on (this repetition is changed to:) he is a kid, he is a kid. (He gives an explosively loud cry).

Physician: Who's only a kid?

Patient: My father—that's all I want to be—want to be a scholar—my mother is a scholar. (There is a quiet period of several moments). Just a little while ago I wanted to be a scholar—I'm just a kid—I'm only a little kid—I'm all right—my mother thinks I'm just a kid—more and more tied—Fay is the hardest of all to say—hell—what is going on—who the hell are you? (This question is asked of the nurse and there is no reply). No I don't (spoken with open hostility and then says to her) come on—come on. (His request is then directed to the doctor and in a whisper he says:) come here—stay with me—don't go away—take me away.

Physician: Where?

Patient: To the showers (taken routinely after each treatment) I want you to stay with me—take me to the showers.

Physician: What is it like?

Patient: It is warm wet and it's nice.

Physician: Wet.

Patient: It's nice and wet.

Physician: You want me to stay.

Patient: Yes, don't leave. (The patient glances over to a nurse standing at his bedside and the nurse asks the patient: "Do you want me to go?") You can go. (The patient waves the nurse away).

Summary of fantasy words: *come* (on)*—be* (kid)*—want* (father, mother, scholar)*—little—all right—think—tie—hard—say—hell—go—stay—take* (me)*—showers—warm—wet—nice*—(don't) *leave.*

INTERVIEW NO. 7

This interview followed five days after the preceding one. It was the forty-fourth treatment and the thirty-first coma. The interview was held as the patient was being terminated by injection of intravenous glucose solution.

Physician: What's happening?

Patient: (He is shaking his head and repeating quickly for half a minute the following words:) life—life—life—etc. (He then begins to alternate the word *life* with the word *movement* and said:) movement—life—movement—life—movement (then shouts) let me out of here.

Physician: Where have you been?

Patient: Here—I want to touch you, oh, oh. (He has just grasped the doctor's hand in a handclasp. Patient turns head away, smiling and sighing as though he had succeeded in having something that he felt was unobtainable). You are the authority and I want permission to go to the shower, sir. (As he asked this question repeatedly he emphasized the word *sir* both at the beginning and at the end of his requests in an exaggerated military manner).

Physician: Who says sir?

Patient: The recipient of the authority.

Physician: I would be the authority. (When the doctor does not respond directly to patient's request for permission to shower, the latter showed resentment and shouted: "What's the matter with you?")

Summary of fantasy words: *life—movement—let* (out)—*want—touch* (authority)—*go—shower—receive* (authority).

INTERVIEW NO. 8

The following interview is a report of the patient's words and behavior while coming out of coma at the time of termination on the forty-sixth treatment and the thirty-third coma.

Patient: Mary Peter give me it. (These words are repeated rapidly for a minute or so while the patient makes blowing motions and sounds with his mouth that are interspersed with loud screams. The name was that of an earlier girl acquaintance of the patient's who evidently figured heavily in his adolescent sexual fantasies as a displaced mother figure. He said of her that she was older, had large breasts, was tabooed by his father, was "hot" and went out on dates with older boys.)

Physician: What does Mary Peter give?

Patient: To me—give me it. (This is repeated several times. The screams cease, but the patient now begins a movement of spreading and closing his thighs as he lies facing the ceiling. He makes blowing sounds in and out through his mouth and the doctor asks what he is doing. The patient responds quickly:) Whatcha doin whatcha doin', whatcha doin'. (This is repeated for half a minute, and then the patient blinks at the doctor and yells:) he-haw-ha-ee-aa-oo-ah-ee-aa-oh-ee. (He continues the yelling and is blinking an eye at the doctor.)

Physician: Who is she? (This is in reference to a nurse who is leaving the patient's bedside.)

Patient: God damn no good son-of-a-gun—gun of—gun of. (This "son-of-a-gun' and "gun of" phrase were spoken very loudly in rapid succession and for several minutes.) You no good son-of-a-bitch—bald headed guy with glasses. (He shouts loudly and angrily the latter words. They are in reality descriptive of both patient and doctor. Such identifications are a frequent observance among patients in this phase. A woman nurse then appears and assists the patient in inserting his rectal thermometer. The patient begins to make a grunting noise.)

Physician: You are grunting.

Patient: That is my brake. (Patient is now laughing out loud and shouts repeatedly in an exaggerated way:) ha-ha-ho-ho.

Physician: You're laughing.

Patient: Yeah—I'm nuts—catch on.

The patient signals to the male nurse waving to him with his hands and fingers while he also shakes his head to indicate *no*. A woman nurse gives a partly filled cup of fruit juice to the patient. This elicits from the patient an angry response. The nurse fills the cup and returns with it to the patient. He refuses the fruit juice by saying: "No, sir—take it away."

Physician: You called her sir.

Patient: I mean ma'am. (His response is quick in making this change.) I want J. (the male nurse), I want him to take me to the shower.

Summary of fantasy words: *give* (me)—*do*—(God) *damn*—(no) *good*—(son-of-a) *gun*—*bitch*—*bald*—*brake*—*be* (nuts)—*catch* (on)—*take* (nurse's juice away)—*want* (male nurse)—*take* (me)—*shower*.

The ninth interview was held four to five hours after termination of the fifty-ninth treatment and the forty-sixth coma. The patient on this occasion reported a "dream" which he associated with a treatment termination more than a week earlier on the fifty-second treatment and thirty-ninth coma. At this stage of the treatment course the patient made favorable statements concerning the therapy, such as: "Good treatment—seems to help—seem to dream—conflicts all seem to come out of you during the treatment." This represented a definite change in attitude from the early interviews.

The manifest content of the dream reported in this interview was as follows: "I was a white rock in a river. When police boats came by in the night, I would come to the surface where I could be seen. All of the other rocks were black and faded into the night. The police boats hit them and sank but there was always another one around."

Summary of fantasy words: *good*—*treat*—*help* (less)—*dream*—*conflict* (feathers)—*come*—(out, in back)—*remember*—*week* (weak)—*shower*—*white-rock* (woman)—*black* (villain)—*police*—*power*—*see*—*hit*—*sink*—*be* (fish)—*hear* (motor)—*go* (over head, below)—*look* (water)—*attract* (men).

DISCUSSION

There may be a question as to the effect of this interviewing technique on the patients studied. Surely, the effect of periodic interviewing is meaningful to a patient, and some extraneous, possibly therapeutic, factors are likely to occur. Any attempt to ascertain solely what happens during the insulin treatment by using such an interviewing method produces an inherent complication. The resulting effect on the psyche would be comparable to exploring the abdomen without leaving a mark on the body. It should be emphasized that no attempt was made to do therapy with the group which was studied. Patients remain the same, or recover, whether they are interviewed in the manner described or not. This is also true whether or not they express their fantasies spontaneously by words and actions. It is regularly found that interviewing will elicit fantasies even when the patients remain "silent on the outside" during their treatment periods. Patients are also capable of assimilating their central conflictual experience without outward emotional discharge. The evidence for this is based on the continuity of a persisting central theme recognized in quiet, inactive patients whenever verbal communication is established with them. Although silent patients are not uncommon, other patients act out and express the most intensive sort

of experiences. These experiences are always conflictual, ambivalent, or two-sided at some level of the patients' consciousness as they enter and emerge from coma. Still other patients discharge their emotions violently during some treatment periods and on other days are silent. The latter pattern occurred in the patient whose case is presented. Those benefited appeared to profit from the experience due to certain undetermined attributes of their personality that avail themselves of the setting provided by the insulin coma treatment.

One fact in insulin coma therapy is certain; there is more to the experience than may be reduced to any single event. Some events that have been reported are death with rebirth, punishment with guilt, or the exclusive effect of suggestion, favorable transference setting, regression, or some specific physiologic action. Insulin coma as a therapy involves a complicated physiologic and psychic experience. The material presented herein attempts to relate into a unified concept the interaction of these two spheres. It necessarily includes within its scope many other dependent and related events, some that are required and others that may occur irregularly. The main virtue of insulin therapy is also its principal shortcoming. Its virtue is the profound regression which allows the exposure and working through of the deepest psychic contents. Its shortcoming is the dangerousness of the treatment since more fatalities occur than is usually recognized.[36] In the future safer drugs may be found that will allow a comparable working through of unconscious experience. The accomplishment of this problem belongs as much to the field of anesthesiology as it does to the field of dynamic psychiatry.

SUMMARY

Fantasy experiences with their verbal and bodily expression have a characteristic pattern for each patient during insulin coma therapy. To illustrate this a case history was presented with nine interviews representing various stages during the course of insulin treatment. The fantasy content of the interviews was demonstrated by use of a method adapted to insulin coma patients from the technic of Associative Anamnesis. An attempt was made to reveal the relationships between the patient's verbal and pantomimic manifestations to both the significant circumstances of his earlier life and to the symptoms of his acute psychosis. An hypothesis was presented as a result of the observations made on eleven schizophrenic patients during the course of insulin coma therapy. The hypothesis was that the combined tendency to physical and psychic discharge, occurring as an effect of hypoglycemic intoxication, was a sustained abreaction or assimilation throughout the treatment course. Either one was a reproduction of the central conflictual experience of the patient's life. The term, central conflictual experience, was used to represent a condensation of those fantasies resulting from his intense infantile wishes and their prohibitions. Those latter in turn were shown to have arisen in the emotionally depriving situations, or other arresting experiences during his early personality development. Insulin coma therapy was considered to have as its essential quality, the tendency to allow either abreaction or the silent assimilation of the patient's central conflictual experience. It was suggested, therefore, that the treatment has its operative effect within the concept of the repetition compulsion. What the personality qualities were that enabled some schizophrenics, through repetition, to

assimilate their distorting conflicts while others were not so enabled, remains an unsolved problem.

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RESUMEN

Se presentan varias entrevistas en relación con un caso ilustrativo, las cuales se desarrollaron en fases progresivas durante el curso de un tratamiento por el coma insulínico. El concepto de continuidad de un conflicto inconsciente central fué demostrado dentro del material de fantasía recopilado. Para el paciente presentado, este material consistió esencialmente de deseos pasivos y dependientes que fueron aparentes en relación con los padres reemplazados. Tales sentimientos inaceptables de abandono se reflejaron como un temor para él y fueron equilibrados en un conflicto persistente por otras actitudes violentas o agresivas, también presentes en la reconstrucción de las fantasías.

Se ha observado en las fantasías una continuidad de conflicto, que aparentemente surgió en la vida anterior del paciente, apareciendo abruptamente en la superficie de la realidad al comienzo de su psicosis siendo objeto de una persistente y repetida abreacción en la producción de fantasías durante la terapia insulínica.

RESUME

Des entrevues faisant partie d'un cas démonstratif furent présentées. Elles se sont déroulées à des phases progressives se développant au cours d'un traitement par le coma insulinique. Le concept de continuité d'un conflit inconscient central a été démontré dans le sujet de la fantaisie. Pour le malade, ces fantaisies consistèrent essentiellement en désirs passifs, dépendants, qui furent apparents relatifs à des subrogés de père et de mère à la fois. De tels sentiments inacceptables d'abandon furent éprouvés comme constituant un danger pour lui. Ils furent contre-balancés dans un conflit persistant par d'autres attitudes agressives ou violentes également existantes dans les fantaisies reconstituées. Il s'y manifesta une continuité de conflit qui apparamment avait pris naissance dans les premières années de la vie du malade, devenant brusquement une réalité avec l'apparition de sa psychose et qui, à plusieurs reprises, fit l'objet d'une catharsis dans les productions de fantaisies de la thérapie insulinique.

ANNOUNCEMENT

The JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY will be combined with the QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY beginning with the January, 1954, issue. This combined edition of the two journals will include advanced clinical and experimental reports concerning all phases of psychiatric service and research—biologic, chemical, psychologic, physiologic, and social—and abstracts of the more significant articles in the periodical medical literature of the Americas and Europe.

Doctors Arthur M. Sackler and Félix Martí Ibáñez will continue as Editor in Chief and International Editor, respectively, of the JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY, and Doctor Winfred Overholser continues as Editor in Chief of the QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY. Also, the same editorial boards will remain unchanged for each of the journals.

Psychiatric Activities and Instruction At a General Hospital

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Editor's Note: In the United States in recent years increasing attention has been given to the preventive and therapeutic role that clinical psychiatry can play as an integrated medical discipline in a general hospital. Professor Finn Rud who is well-known for his original classical basic contribution on the eosinophile in health and in disease as well as for his reports on socio-psychological and clinical aspects in psychiatry, here presents the experiences of his psychiatric service in a Norwegian general hospital. One must keep in mind that while psychiatric nosology may be basically similar, criteria for diagnosis may be different in different countries as it also differs in varied clinics and psychiatric departments in the same country. Regardless of these differences, the material presented is of practical and clinical significance.

INTRODUCTION

It is now a generally accepted fact that a general hospital has a great many patients who need some form or other of psychiatric service. This particularly refers to the medical departments. Statistics from various countries show that 50 per cent or more of such general hospital patients are in need of psychiatric care. It is thus evident that we are facing a problem of extreme importance which must necessarily influence our hospital system. However, until recently, we seem to have been content with the statement of this fact. The study of the true nature of this immense psychiatric material has attracted only minor interest.

It is the object of this paper to try to obtain a certain insight into the composition of this human material, the nature of the diseases, the diverse problems of these people. The examination began as a natural consequence of the function of the author as teacher of psychiatry, for at the new university in Bergen there is no psychiatric clinic. It has therefore, to a large extent, been necessary to supplement the instruction at the asylum here with the nervous and psychopathic material available at the general hospital.

Psychiatric practice was started at the medical department of the General Hospital in October, 1948. The present paper comprises investigations from the said point of time up to April, 1952, i.e., a period of about three and a half years. The material comprises data on 408 persons in all. During this period, a total of 8,548 persons were treated in the medical department. It is clear that this figure of 408 does not present a true figure for the actual number of psychiatric patients that pass through this department. A truly systematic

TABLE I

Survey of the General Situation of Illness

	The Individual View (The Patient)	The More Specialized Medical View (Doctor, Hospital)	The Social View (Society)	The Academic View; (Institution of Instruction)
Purpose	Recovery	Recovery	As many sound, able-bodied individuals as possible.	Training in the art of medicine with recovery as final purpose.
Means	Personal contribution. What the coummunity does.	Etiology. Diagnostics. Therapy. Institutions.	Investments in research, hospitals and medical service. Orientation for social consequences of the illness.	Adequate institutions of instruction. Varied material.
Relations of importance for the total situation of the illness (Etiology, diagnosis, therapy, prognosis).	Sex. Inheritance. Age. Working capacity. Constitution (mental and physical). Other social conditions. Social responsibility. Occupation (economy). Family life. Number of children. Civil position. Other factors of surroundings. Previously able-bodied. Possibilities for recovery. Course of illness. Duration. Nature. Previous treatment.		Evaluation of the man. Evaluation of the patient. Evaluation of the doctor. Evaluation of the community	General medical orientation. Specialized knowledge. Medical psychology Psychosomatic medicine Psychiatry. Neurology Sociology. Ecology.
Evaluation of results.	Personal comfort. Working capacity.			
Causes of unfavorable results.	Self-inflicted. Lack of adequate therapeutic means and institutions.	Deficient: Teaching of causality, therapy and institutions.	Lack of orientation about the importance of the disease. Investment in the medical field concerned.	Lack of adequate institutions of research and instruction.

psychiatric service in this department by a permanent psychiatrist would surely reveal a far greater number.

Before discussing the analyses, some of the difficulties connected with the psychiatric activity at a central hospital should be mentioned. It cannot be denied that there was and is a certain "horror psychiatrici." This was taken into consideration when we started our work at the hospital, particularly since the patients were to be presented in clinical demonstrations. Tact and discrimination have been utilized so as not to repel the patients. Naturally, there are a number of very delicate and extremely intimate relations with which a psychiatrist will have to deal. The analyses and material here presented must be considered from this background of a cautious approach to the patient.

At the beginning, therefore, the author operated on the basis of personal information from the patients, trying to be as considerate as possible of the patients and without applying any searching psychiatric explorations with special methods, even in those cases where this might have been desirable. For the most important thing in the beginning is to establish a state of confidence between patient and psychiatrist. In this way the patients from the department of internal medicine become accustomed to having psychiatrists around them.

GENERAL PATHOLOGIC SITUATION

The author's point of view begins with the general pathologic situation, considering the problems from a somato-psycho-socio-biologic angle. Table I, which gives a survey of the problem position, shows that in regard to illness on the whole, there are four factors of major interest, namely: the patient, the doctor (the hospital), society, and the institution of instruction. The object is the same for all: recovery. As can be seen, however, the means are different. The author particularly wants to emphasize the importance to society of obtaining information on the national-economic importance of disease so as to be able to make adequate investments, *investments* not *outlays*.

As to the most important relation in the total pathologic situation, we find a large central group showing natural relations to all the four main factors concerned. One could say that the essential in dealing with this heterogeneous group is the estimation of the human material. It is natural that a social estimation is adopted first and the question is asked: "Of what kind and quality is this human material I have taken the responsibility of treating? Can I, as a physician, speak of investments, when I will try to increase the chances for recovery through a better medical treatment?" We shall see how the data presented here can answer this question through an analysis of the patients' efficiency, occupation, and social responsibility, constitution, etc., with a subsequent analysis of the nature and prognosis of the groups of illness.

Clinical Material

Age & Sex.—Figure 1 is a survey of the distribution according to sex and age. A total of 408 persons were examined, 182 men and 226 women. According to the histogram of age

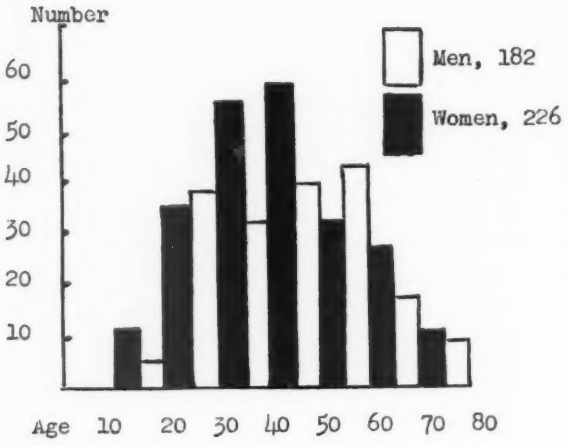

FIGURE 1.

distribution, the patients are distributed between the ages of 15 to 80, with a distinct accumulation in middle age. There is a tendency in the women to negative skew graph of distribution—a displacement of the main group towards the left with maximum values between 30 and 50 years of age. As for the men, there is suggested a double-topped graph, two modi, with one maximum between 20 and 30 years of age and another between 40 and 60 years of age. This may indicate a more heterogeneous male group. The greater number of chronic male alcoholics may possibly be of importance here. All in all, it is evident that the largest group is comprised of men and women in their best working years at the time of their greatest social responsibility and responsibility for the new generation. It is, of course, a serious problem that persons are attacked by nervous disorders during their most efficient age.

Civil Status.—As to the civil status of the patients: Table II shows that no less than 122 men and 127 women are married. If all the women who are or who have been in family situations are included, the latter figure changes to 157, i.e., about 70 per cent of the total number of women. A survey of the distribution of the children is given on the lower part of table II showing that 52 men and 70 women, a total of 122 persons, are responsible for children under 20 years of age living at home. The relatively low number of men is explained by their distribution according to age in the material—they are mostly in the 45–60 age group. The number of children under 20 years is calculated at 100 and 142 respectively, total 242 children. This is a rather large number involving a considerable social responsibility for this group of people. And when, further on in this paper, we enter more deeply into the nature of the illnesses and the constitution of the causative relations, we will understand the deep social tragedy behind these figures.

Occupation.—Table III, which indicates the distribution according to occupation among men, shows that there are several business men, i.e., self-supporting persons. Clerks and those engaged as captains and stewards, for example, constitute a somewhat larger group. The large group of workers is remarkable—a good deal more than one third. It is difficult to tell whether the group of workers represents a real majority. A much larger basic sample would, of course, be required to answer this question. Furthermore, in such an analysis the risk number must be compared with the occupational distribution among the population. The occupational group in industry and handicraft shows a steady percentage increase from 1890 on. Both in the census of 1920 and of 1930 in Norway it was second with 28.84 per cent and 27.50 per cent after agriculture, forestry and fishing. The solution of the question

TABLE II

Civil Status

	Number		
	Men	Women	Total
Unmarried	47	69	116
Married	122	127	249
Divorced	9	14	23
Widowed state	4	16	20
Number with children under 20	52	70	122
Number of children under 20	100	142	242

TABLE III

Men: Distribution According to Occupation

Occupational groups	Number
Trades people	15
Administrators	16
Staff personnel	15
Craftsmen	14
Teachers	2
Musicians	1
Restaurant personnel	5
Laborers	69
Sailors	20
Students and school children	4
Pensioners	7
Home employment	9
Without permanent employment	3
On relief	2
Total	182

TABLE IV

Women: Distribution According to Occupation

Occupational groups	Number
Housewives	123
Business people	1
Administrators	2
Staff	26
Domestic servants	18
Restaurant personnel	4
Nurses	2
Seamstresses	15
Laborers	17
Schoolchildren	2
Home employment	15
On relief	1
Total	226

of the relation between occupation and nervous sufferings requires a far more thorough analysis than our material allows. Only five persons in the group proved to be without a permanent job.

It is not easy to classify the clinical material according to occupation. While Luxemburger has noted certain principles in this regard and there are international codes we often have to go our own way and let the special purpose of the estimation of the material be decisive. The purpose here is to elucidate the social standard of the material. A more minute analysis of the main groups is therefore of less importance.

Table IV shows the distribution according to occupation among women. We find here a rather high percentage of housewives. This was also seen on the table of the civil condition. It is important to notice that only one is classified as "receiving poor relief."

The distribution according to occupation shows that the separate individuals of the group represent important wheels in the social machinery.

Premorbid Personality.—An estimation of the inner original defenses, the premorbid personality, is also essential to an analysis of this human material. The so-called premorbid personality has been developed on the bases of a great number of complex circumstances. An analysis of these relations must be very thorough, and requires, among other things, absolutely reliable anamnestic data. For the reasons given above, our information is not complete and probably not always reliable as, in all essentials, we have had to fall back on the personal information and estimation of the patients. It is obvious that errors may occur here. But analysis may well be assumed to give a certain impression of the social standard of the material.

Table V shows a survey of what may be called deviating types in the total material. We lack a normal representative material of comparison. Under the existing conditions there was, of course, little purpose in trying to acquire such material. Despite the elements of

uncertainty, we can study Table V for some information. Immediately conspicuous is the large number of sensitive types. A comparison of most of the different kinds of mental sufferings showed that most of the sensitive patients belonged to the neuroses group. This was not unexpected.

If, after making all reservations, we attempt a comparison with the normal population, we must probably say that the present human material is somewhat more disposed than the average population. However, if we consider the purely nervous group, it appears that these individuals have not previously shown any signs of disintegration. Only the actual situations, to which we shall return later, have caused the outburst of the nervous sufferings. We therefore concluded that this group of people evidently had no particular handicap attributable to premorbid personality when compared to the general population as a whole.

Hereditary and Familial Factors.—To estimate the social standard of the material, we shall also undertake an estimation of the family background. Tables VI and VII give a survey of the relations. Regarding this relationship, however, the same reservations as for the premorbid personality must be made. It is not always easy to obtain reliable information from a patient about mental sufferings in his family.

The nature of the information has resulted in the application of the term nervousness. In both tables, this group is found to preponderate. The estimation of the figures in the tables, however, is on the whole difficult because of the deficient material of comparison. Possibly, there is a preponderance of this very same nervous group.

The following conclusions end this part of the treatment of the material: We have before us a group of persons which, in all probability, is somewhat more heavily affected both

TABLE V

Premorbid Personality

Type of character	Number		
	Men	Women	Total
Sensitive	45	42	87
Schizoid	9	6	15
Const. neurasth.	5	9	14
Hysteric const.	3	8	11
Nervous	0	4	4
Depressive	1	2	3
Debilitas	9	5	14
Self-uncertain	3	6	9
Erethitic	1	3	4
Irresolute	9	2	11
Compulsive character	2	0	2
Cyclothymic	2	2	4
Total	89	89	178

TABLE VI
Heredity: Men

	Nervousness	Psychopathy	Epilepsy	Alcoholism	Narcomania	Mental disease (psychoses)	Imbecility
Father	3	1	2	7	0	2	0
Mother	17	3	1	2	0	0	0
Brothers and sisters	16	0	3	0	0	2	0
Children	3	1	1	0	2	4	0
Grandparents	1	0	0	0	0	4	0
Cousins	0	0	0	0	0	0	0
Uncles, Aunts	5	0	0	4	0	10	0
Total	45	5	7	13	2	22	0

Heredity total number: 94 out of 182 examined persons.

TABLE VII
Heredity: Women

	Nervousness	Psychopathy	Epilepsy	Alcoholism	Narcomania	Mental disease (psychoses)	Imbecility
Father	12	2	0	2	0	0	0
Mother	9	1	0	0	0	3	0
Brothers and sisters	14	1	2	3	0	10	2
Children	1	0	1	1	0	1	1
Grandparents	2	0	1	0	0	1	0
Cousins	4	0	0	0	0	0	1
Uncles, Aunts	5	0	1	0	0	4	0
Total	47	4	5	6	0	19	4

Heredity total number: 85 out of 226 examined women.

familially and individually than the average, yet without preceding distinct abnormal reactions in the sociopsychiatric sense. This group of persons has a favorable age and has shown good social ambition, with a previous continuity. Thus, this group has acquired a solid social and occupational position. These individuals have been able to accept social responsibility and obligation in the form of systematic social activity—marriage, education, and children.

PSYCHIATRIC SURVEY

We shall now study more closely the kinds of disease that have taken place in this group of persons. Furthermore, we shall ask ourselves: how long have these illnesses lasted and what are their causal factors? On the whole, how are these sufferings constituted?

In connection with the duration of the illness, it may also be of interest to inquire into the number of previous admissions to hospitals owing to the actual suffering. It appears here that the vast majority of patients have never before stayed at a hospital.

PSYCHIATRIC SURVEY

Table VIII shows a general survey of the main psychiatric diagnoses. It is obvious that the group of neuroses is by far the largest one. It constitutes about one half of the cases, with organic sufferings about 16 per cent of the cases. The psychoses amount to about 11 per cent of the cases and the frequency of attempted suicide amounts to 25 incidences. Compared with other major general hospitals there is nothing extraordinary about this latter figure. From the table, we see that there are more suicide attempts among women. This is a common experience, but completed suicides are more frequent among men. The causes of the suicidal attempts among women were the usual ones: melancholia, conjugal difficulties, senile depression, difficulties of environment. Among the causes in men we find "chagrin d'amour" and infidelity.

Problems in Psychiatric Instruction.—It is evident that the material is rather heterogeneous. This is, of course, an advantage with regard to teaching. But considering the fact that the time for the collection of this material extends over about three and a half years, some of the groups naturally were very small and made continuous instruction more difficult.

TABLE VIII
Psychiatric Diagnoses

Form	Number, (Percentage)		
	Men	Women	Total
Neuroses	62 (34)	144 (64)	206 (50)
Psychopathies	12 (7)	14 (6)	26 (6)
Psychogenous depressions	8	14	22 (5)
Psychoses	18 (10)	26 (12)	44 (11)
Epilepsy	7	0	7 (2)
Chronic alcoholism	22 (12)	2 (1)	24 (6)
Narcomania	8	1	9 (2)
Imbecility	6	3	9 (2)
Organic brain sufferings	39	22	61 (15)
Total	182	226	408
Suicide attempts	10	15	25

The author particularly wants to point out that the group of psychopaths is very small. The same is the case with the following groups: psychogenic depressions, epilepsy, alcoholism, feeblemindedness. The group of psychoses is also small and, as we shall see, extremely uniform.

The neuroses group may seem rather large, but this too has its distinct deficiencies, and must be considered insufficient for the teaching of psychiatry. This is apparent from Table

TABLE IX

Neuroses

Form	Number		
	Men	Women	Total
Neurasthenia	7	19	26
Constitutional neurasthenia	4	13	17
Neurasthenia *e labore*	5	7	12
Neurasthenia in connection with organic disease	6	14	20
Shock neurosis	2	6	8
Hysteria	5	26	31
Cephalalgia	0	6	6
Anxiety neurosis	11	15	26
Anxiety neurosis in connection with organic disease	4	6	10
Stomach neurosis	6	7	13
Depression	7	17	24
Hypochondriasis	5	8	13
Total	62	144	206

TABLE X

Psychopathies

Form	Number		
	Men	Women	Total
Hypochondriacs	1	2	3
Schizoid	0	1	1
Erethitic	1	1	2
Depressive	2	1	3
Irresolute	6	3	9
Sensitive	1	1	2
Hysterical	1	5	6
Total	12	14	26

IX. The sub-groups are so small that clinical demonstrations become completely casual. The greatest drawback is that important psychoneuroses, such as the obsessive-compulsive states, are absent. Of course, the true psychoneuroses are not, with few exceptions, admitted to a medical department.

In Table X, there is a scanty and little varied choice of psychopathies. From the point of view of teaching, this represents, as you will understand, a very great disadvantage.

The same is the case with the group of psychotics, Table XI. Thus, we find only two cases of schizophrenia, and the other groups are also extremely small. We have been completely cut off from demonstrating incipient forms of psychosis.

Table XII shows the organic brain sufferings. As we see, the group is not large and the subgroups are correspondingly small. At an academic general hospital, psychiatry and

TABLE XI

Psychoses

Form	Number		
	Men	Women	Total
Man.-mel. mental suffering	3	14	17
Schizophrenia	1	1	2
Hysteriform psychosis	2	2	4
Hysterio-epilepsy	0	1	1
Psychogenous psychosis	7	7	14
Symptomatic psychosis	5	1	6
Total	18	26	44

TABLE XII

Organic Brain Disease

Form	Number		
	Men	Women	Total
Paralysis agitans	1	1	2
Arteriosclerosis cerebri	3	6	9
Senile demens	12	9	21
Paralysis generalis	7	0	7
Tumor cerebri	4	0	4
Encephalitis	0	2	2
Sclerosis multiplex	3	0	3
Meningo-encephalopathia trauma	9	2	11
Cushing's disease	0	2	2
Total	39	22	61

neurology will complement each other and make up for this deficiency.

Social-Psychiatric Factors.—We leave the problem of instruction and return to social-psychiatric considerations. We have seen that the persons we have had before us suffer from a number of partly serious illnesses. There is in pathology a general rule that every illness should be treated as early as possible. This is also essentially true in psychiatry. It is therefore natural that we review our material in this respect. Table XIII gives a survey of this relation. In this table illnesses with definitely bad prognoses have been left out, such as advanced conditions of dullness, mental retardation resulting from arteriosclerosis cerebri, encephalitis, and senile dementia, epilepsy, and feeblemindedness. They are, indeed, of minor importance in this appraisal. The data give a picture of the duration of the functional sufferings, psychogenous depressions, psychoses of different kinds, narcomania, and alcoholism. The table comprises 388 cases.

Most of the cases have a relatively short duration of psychiatric pathology, considering psychic sufferings in general. In the males the distribution in time is more even; several have a relatively long duration. The preponderance of chronic alcoholics certainly influences this factor. Taking the material as a whole and going as far back as (and including) a duration of three years, we find altogether no fewer than 248 out of 388 cases. Three years is actually of short duration when compared to psychiatric sufferings in adult groups of the same ages.

The cases of more than ten years' duration include the more chronic conditions, such as constitutional neurasthenia, psychopathy, extended sufferings of hysteria, post-traumatic diseases and alcoholism.

These considerations bring us to the following conclusion about the social standard and pathologic nature of this material: we have before us a group which, psychologically speaking, possibly deviates somewhat from the average. This, however, did not previously lead to any serious social handicap.

TABLE XIII
Duration of Psychiatric Illness Before Medical Admission

Duration	Number		
	Men	Women	Total
Under ½ year	46	63	109
½ to 1 year	12	21	33
1 to 2 years	19	33	52
2 to 3 years	22	32	54
3 to 4 years	10	9	19
4 to 6 years	10	17	27
6 to 10 years	20	18	38
Over 10 years	24	16	40
Incomplete information	10	6	16
Total	173	215	388

Individuals of the group have filled their social positions in the normal way and have shown normal social responsibility and social power in the form of choice of occupation and formation of a family. They are struck by semi-serious sufferings, but of a relatively short duration, a relation that is of great prognostic importance. In short, a group that from a general social and medical point of view does not differ from the usual groups of patients in a central hospital and which should therefore be entitled to our entire medical consideration —examination and therapy—and with which the students should become acquainted as much as possible.

Causal Factors.—We shall now go over to probably the most important point in our consideration, the relation that plays the greatest part from a purely medical, social, and instructional point of view—the causal factors, the psychobiologic constitution.

We have first of all to deal with factors which we have already dealt with before, namely the predisposing factors. There are two main forms: (1) the constitutionally conditioned premorbid personality and (2) the acquired disposing factors in the form of bodily diseases, intoxications, and traumas of a bodily as well as of a psychic nature. In the psychobiologic ring we then get, besides these predisposing factors, the exogenous releasing factors—the milieu factors.

We have already dealt with the premorbid personality. We shall now deal with the importance of the bodily diseases and other exogenous factors for the etiology of these ailments. In the total material, we find 225 persons in all suffering from some organic ailment including the organic brain disease. The total material consisted of 408 persons—226 women and 182 men. Among other diseases we noted: anemia, syphilis, duodenal and ventricular ulcer, Marfan's syndrome, et cetera.

The neuroses, reactive conditions in psychopathics, neurotic conditioned alcoholism and psychoses comprise a group of 327 patients. In this group somatic sufferings are not rare. We very often see in these patients that accompanying bodily diseases, which are often quite benign, serve to complicate the psychic suffering, as they are built into the morbid personality. Thus we find that an insignificant heart-suffering may accentuate anxiety-neurotic attitudes. This may be caused by an innocent arythmia or the knowledge of an extra sound. The same may be the case with a slight attack of anemia, a gastritis, etc. The said diseases may, as is well-known, easily give rise to hypochondriac and depressive attitudes and neurasthenias. These are conditions that have certainly not been sufficiently heeded in medical circles. Information about insignificant organic findings is more important than we usually assume. Thus, psychiatrists quite often see that rash remarks have easily led to an organization or fixation of neurotic attitudes in the form of what we call the iatrogenic neurosis.

It probably ought to be pointed out that the above-mentioned Marfan's syndrome gave, psychically speaking, a pronounced social and sexual unsteadiness with a strong depressive neurosis.

It would be of interest to compare these findings with those from a psychiatric department. We have, unfortunately, no exact information at hand. But, as we know, minor organ disturbances in some form or other are not at all infrequent among psychiatric clinic

and asylum patients. (See Wohlfahrt's investigations at Beckomberge Hospital.) When making an estimate, one should assume that our material in this respect is nearly in conformity with material from a psychiatric observation department.

We shall now study more closely what are called the exogenous, releasing factors of psychic nature. The factors that have been set up represent truly larger traumas, i.e., strains of a certain weight. Undoubtedly, not all environmental factors have been included.

The investigations showed that we found such exogenous psychic factors of surroundings of some importance in 100 per cent of the patients. An analysis of the total group of factors showed that there was natural division of the patients into four subgroups (table XIV): *Group 1*—lack of self-confidence due to economic-occupational factors, *Group 2*—lack of self-confidence due to social and sexual factors, *Group 3*—other social factors, *Group 4*—other traumatic experience.

In Group 1, we notice that displeasure with, and excess of, work is a contributing factor. Unemployment at time of the examination is of minor importance. All in all, we see that the males in this group show a certain, if only slight, preponderance.

TABLE XIV
Exogenous Factors

The general economic insecurity of the working situation	Number of persons			Social and sexual insecurity	Number of persons		
	M	W	Total		M	W	Total
Demands for compensation	2	0	2	"Chagrin d'amour"	5	9	14
Poor economy	9	5	14	Conjugal difficulties	9	31	40
Occupational fatigue	17	13	30	Divorce	2	2	4
Pressure of work	15	12	27	Prolonged engagement	0	1	1
Unemployment	2	1	3	Sexual conflict	0	5	5
Insecurity as to the future	1	4	5	Pregnancy	0	1	1
				Illegitimate children	2	5	7
Total	46	35	81	Total	18	54	72

Other social insecurity	Number of persons			Other traumatic experience	Number of persons		
	M	W	Total		M	W	Total
Domestic troubles	9	9	18	Shock	5	10	15
Difficulties of surroundings	13	26	39	War strain	9	8	17
Unhappy childhood	7	8	15	Sorrows. Worries. (Illness, death)	0	24	24
Poor housing conditions	19	21	40	Religious crises	0	1	1
Unworthy behavior during the war	1	4	5				
Total	49	68	117	Total	14	43	57

TABLE XV
Number of Factors

Kind	M	W	Total	Per Cent
Endogenous factors	77	67	144	24
Bodily disease	59	41	100	18
General economic insecurity of the working situation	46	35	81	15
Social-sexual insecurity	18	54	72	12
Other social insecurity	49	68	117	21
Other traumatic experience	14	43	57	10
Total	263	308	571	100

In Group 2, we see that disappointment in love, breach of promise are also exogenous factors present in these patients. Conjugal difficulties are of major importance, particularly among women. This group comprises: infidelity, difficulties because of alcoholism, constant quarrelling, lack of home life, loose living, feeling of loneliness with depression, jealousy, etc. Long engagements are a cause sometimes met with in psychiatry. This is, as a rule, found in men who are morbidly attached to or cowed by their mothers and who do not dare to enter into marriage; they usually wait until the mother dies. Sexual conflicts often present ambivalent attitudes: homosexuality and frigidity. This group considered as a whole is preponderately female.

In Group 3, there are family difficulties, quarrels with the mate's family in some form or other, etc. Distribution according to sex is even. Bad housing conditions are of dominant importance in this group.

In Group 4, we find the term shock. Here we find sudden accidents with psychic shocks and injuries to the body, bomb shocks, other forms of explosion shocks, shock experiences in childhood, bigamy (German), etc. Effects of the war are the usual ones: imprisonment, having been bombed out, fear about family, work for Germans, grief or illness and death, particularly among one's relatives, husbands at sea, problem children. Women constitute a majority of this group.

The data indicate that men are in a majority where economic-occupational factors are concerned. In the case of socio-sexual relations, there is a decided preponderance of women. This is a relation which was also demonstrated by Faergemann in his paper about psychogenous mental sufferings.

It is evident from our analysis that the number of exogenous factors greatly exceeds the number of patients. This supports the author's experience that very rarely does one single factor release the neurotic attitude of life. This is usually conditioned by an intimate cooperation of different components, which in a certain situation at a certain point of time, get a specially unfortunate constellation. Therefore, as we know, the nervous disintegration represents a marked personal suffering.

Tables XV and XVI demonstrate these more complex relations. Here all the causal factors of the group nervous sufferings are placed together: the constitutional ones, the

TABLE XVI

Number of Assumed Causal Factors in Neuroses, Reactive States in Psychopaths, Psychogenous Sufferings, Neurotic Conditioned Alcoholism and Post-Traumatic Neuroses. (Constitutional, Bodily and Exogenous Factors.)

Number of factors	Men	Total number of factors	Women	Total number of factors	M + W	Total number of factors (M + W)
One	57	57	59	59	116	116):17%
Two	41	82	82	164	123	246):37%
Three	27	81	21	63	48	144):22%
Four	10	40	10	40	20	80):12%
Five	3	15	4	20	7	35): 5%
Six	3	18	3	18	6	36): 5%
Seven	1	7	0	0	1	7): 1%
Eight	0	0	1	8	1	8): 1%
Total	142	300	180	372	322	672
Average		2.1		2.1		2.1

diseases of the body, and the exogenous psychic factors which we have dealt with above. In the column to the left in table XVI are found a number of factors from 1 upwards. The next column gives the number of men in the different groups, and the third column gives the number of factors for men. The next part of the table demonstrates the relations for women. In the last column is given a survey of the whole material (men plus women). We notice that the maximum for the total material gathers about two or three factors. This supports the experience that it is seldom that one single factor causes the mental disintegration. In the present material the one-factor group makes only 17 per cent of the whole.

We have to deal with exceedingly complicated diseases which are not often easy to determine. This might, of course, be illustrated by referring to some of the anamneses which are all interesting, individually different as they are.

It is now natural to ask what we have been able to do for the patients we have analyzed. Unfortunately, the answer is that we have been able to do only little under the present conditions. Our task has mostly been of a diagnostic nature. Naturally, the very examination has been useful to some patients and in itself means a relief to them. The clinical instruction has also contributed something in an explanatory and persuasive respect. But apart from this, we have been able to do little, due to the nature of the arrangement. Therefore, all of us who have practiced consultative psychiatric activities at the general hospital are particularly dissatisfied with it. Nor are the internists particularly satisfied, we assume, apart from the purely diagnostic activity. For the most important thing is the help given to these patients after diagnosis has been made.

To look at the demands for treatment which arose for this group of patients, the author believes it is necessary to return to the total group of 408 patients. Table XVII shows the duration of the stay in a hospital. Three hundred fifty-one patients remained in the hos-

pital less than a month. This is, of course, generally too short a time for study of these complicated cases. Duration of confinement to bed at a psychiatric clinic differs greatly in various clinics. Some have very short periods, but it all depends on the possibility for evacuation to appropriate nerve sanatoriums and convalescent homes. In our opinion, however, a clinic that has to be an institution for treatment of nervous persons must reckon with an average time of treatment of at least two to three months.

Table XVIII shows that 102 patients absolutely required treatment at a special clinic. To explain the term "absolute demand," it must be noted that owing to the many requests for admission to the one state psychiatric clinic, transference can only be advised in cases of almost urgent necessity. With regard to transference to asylums, it must be mentioned that the percentage figures agree exceedingly well with the figures for a Norwegian psychiatric clinic.

Finally, we shall glance at the results of the stay in the hospital on the basis of an inquiry among the patients. At the point of time of writing, 192 answers have come in. The results are shown in Table XIX. As we see, the results are bad. This was only what might have been expected in view of the completely deficient psychiatric service under the present arrangements. Unquestionably, at most general Norwegian hospitals psychiatric services play a disproportionately small part in terms both of medical and of national economic allocation. A number of tax-paying sick persons do not receive adequate treatment.

TABLE XVII
Duration of Stay in Hospital

Number of months	Number of persons		
	Men	Women	Total
Under ½ month	94	106	200
½–1 month	60	91	151
1–2 months	21	22	43
2–3 months	2	4	6
3–4 months	1	2	3
Incomplete information	4	1	5
Total	182	226	408

TABLE XVIII
Demand for Special Treatment

Sex	Absolute demand for clinic	Asylum advised	Sent to asylum
Men	62	18	17
Women	40	24	6
Total	102	42	23

TABLE XIX

After-Examination, 192 Answers Received

Nature of the condition	Number	Percentage
Recovered	8	4
Recovered–considerably improved. Relapse	6	3
Considerably improved	19	10
Somewhat improved	33	17
Somewhat improved, relapse	21	11
Unchanged	105	55
Total	192	100

Therefore, the following three questions are natural ones:

(1.) How many bed-days are wasted owing to the existing conditions and how much does it cost our hospital?

(2.) How much does this inadequate and inappropriate arrangement and the consequent prolongation of the period of the illness cost our community in working capacity?

(3.) What does this arrangement cost the patient in disappointments, bitterness, and despondency?

We cannot answer these questions now, but we know that the hospitals today cost the community great sums of money. We doctors must take the consequences of this through a rationalization of the hospital system, so that psychiatry is given a far greater position in the general hospital than it now occupies.

It is believed that the findings and discussion presented will emphasize the importance of psychiatric evaluation of medical patients and will help delineate future research areas and tendencies.

RESUMEN

Se estima que aproximadamente el 50 % de todos los pacientes de los hospitales generales necesitan alguna forma de tratamiento psiquiátrico. En el hospital donde el author presta sus servicios (Universidad de Bergen) de un total de 8.548 pacientes que fueron atendidos en el departamento médico en un período de alrededor de tres años y medio, 408—182 hombres y 226 mujeres—recibieron alguna clase de cuidados psiquiátricos.

El autor cree que la mayor parte de los casos que acuden a los hospitales generales actualmente, debieran ser tratados psiquiátricamente, pero que debido a la falta de facilidades adecuadas, esto es imposible. Trescientos cincuenta y uno de los pacientes que recibieron cuidados psiquiátricos, estuvieron hospitalizados menos de un mes, y éste es generalmente un tiempo demasiado corto para el estudio de cualquier caso complicado. Hubo 102 casos que requirieron ser tratados en una clínica especial.

Algunos meses después los pacientes fueron dados de alta, se les hizo un examen y se halló que el porcentaje de recaídas fué extremadamente alto. El autor hace resaltar el hecho de que ello es debido principalmente a las inadecuadas circunstancias que en la actualidad poseen los departamentos de psiquiatría y que, en la mayoría de los hospitales generales no se le concede la debida importancia al servicio de psiquiatría.

RESUME

Il a été estimé que près de 50 p.cent de tous les malades des hôpitaux généraux requièrent un traitement psychiatrique, sous une forme ou une autre. A l'hôpital de l'auteur (Université de Bergen), 408 malades (dont 182 hommes et 226 femmes) sur 8.548 traités dans le département médical au cours d'environ 3 ans et demi, reçurent des soins psychiatriques sous une forme ou une autre. Cependant, l'auteur estime qu'en fait un plus grand nombre de cas relevant des services généraux, auraient dû être traités, mais ne le purent, faute de facilités suffisantes existantes. Parmi les malades recevant des soins psychiatriques, 351 restèrent à l'hôpital pour une durée de moins d'un mois, temps généralement trop court pour l'étude de n'importe quel cas compliqué. 102 cas exigèrent des soins à une clinique spéciale, de toute nécessité.

Quelques mois après leur sortie de l'hôpital, les malades firent l'objet d'une enquête, et il a été trouvé que le taux des rechutes était extrêment élevé. L'auteur souligne le fait que cet état de choses est dû en premier lieu aux insuffisances actuelles du département psychiatrique et au fait que dans la plupart des hôpitaux généraux, le service psychiatrique ne joue pas un rôle suffisamment important.

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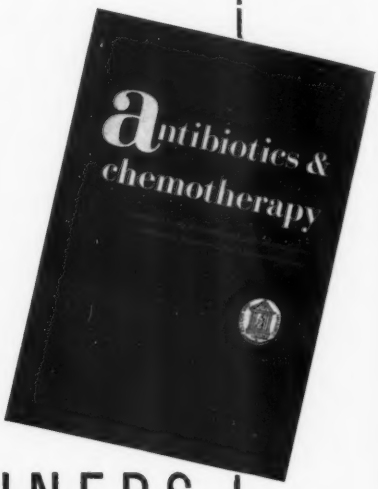

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